Water Quality Clearly Important to Marine Communities

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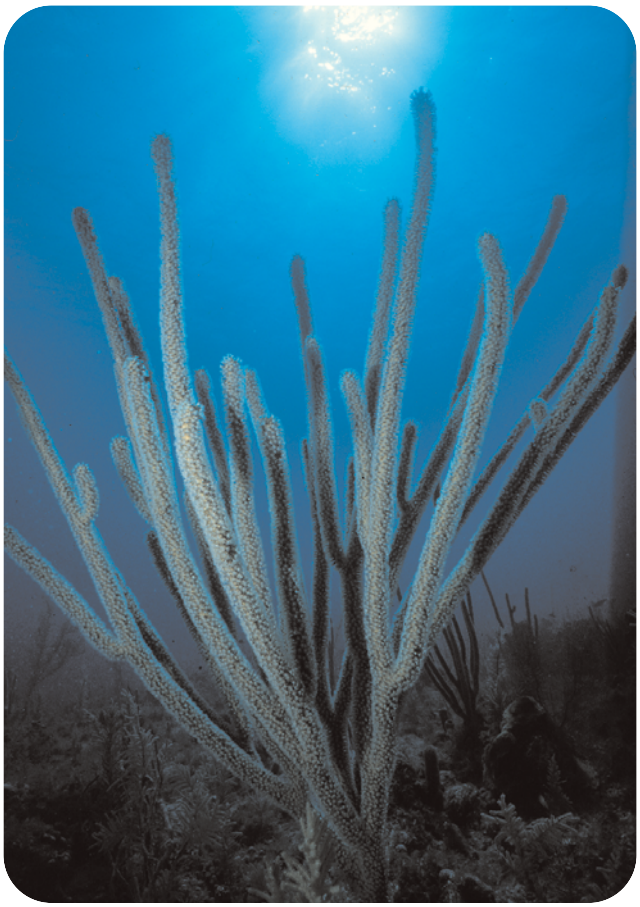
The economy of the Florida Keys is based largely on tourism and fishing. Approximately 3 million visitor trips annually generate over $1.2 billion. Tourists come to the Keys primarily to snorkel or scuba dive, fish, observe wildlife, relax on the beach, and sightsee. The annual dockside value of commercial fishes landed in Monroe County is approximately $70 million. Both tourism and fishing are directly dependent on a healthy marine ecosystem.

The community types that make up the Florida Keys ecosystem exist in a dynamic equilibrium, which means that changes that result in an impact to one community type can have profound effects on adjacent communities. The continued existence of the Keys marine ecosystem is dependent upon maintenance of clear waters with relatively low nutrients.

While not nearly as newsworthy as the recent public health advisories noted on several Keys beaches, enrichment of nearshore waters by excess nutrients is a significant factor in the maintenance of a healthy Florida Keys ecosystem. Poorly treated wastewater and stormwater are the sources of nutrient enrichment of surface waters. Nutrient enrichment of waters can result in profound ecosystem changes, such as changes in water chemistry (e.g., low dissolved oxygen), productivity, and plant and animal distribution and abundance. Many canal systems in the Keys lack abundant and diverse marine life because of nutrient enrichment. These effects can be detected in some other adjacent nearshore waters, and it is feared that if nutrient enrichment continues unabated, it could result in the further decline of ecosystem structure and function.

Sources of wastewater fecal contamination and nutrient enrichment of surface waters include leaky sewer pipes, poor on-site treatment methodologies, and overboard discharge by live-aboard vessels. In addition, many small treatment plants dispose of disinfected but nutrient-rich wastewater by injection into the groundwater via shallow wells. The geology of the Keys results in rapid exchange of groundwater and surface water through porous limestone. There are very few areas of the Keys where stormwater is treated before it enters waters with its sediment and nutrient load. Society has known about these problems for some time, but they were largely ignored until the establishment of the Water Quality Protection Program of the Florida Keys National Marine Sanctuary and the adoption of the Monroe County Comprehensive Plan. Those planning efforts have outlined corrective actions required to remedy water quality problems. A county-wide wastewater master plan has been completed and a stormwater master plan will soon be completed. These plans discuss the best methods of treatment of wastewater and stormwater for specific areas.



The coral reefs and seagrasses of the Florida Keys depend upon clear, low-nutrient waters to survive.

Cooperation and coordination of the entire Keys community and local, state, and federal governments are required to implement the complex and costly solutions to solve water quality problems in the Florida Keys.

For more information on the Florida Keys Water Quality Protection Program, visit: http://www.fknms.nos.noaa.gov/research_monitoring/wqpp.html.

Note: This article appeared in the Winter 2000 issue of the newsletter of the Florida Keys National Marine Sanctuary, **Sounding Line**. *For more information, visit:* floridakeys.noaa.gov.